Orbignya phalerata Mart.

Arecaceae

LOCAL NAMES
English (babassu palm,American oil palm); Portuguese (coco de macau,bagassú,babaçú,aguassú); Spanish (shapaja,catirina,babasú)

BOTANIC DESCRIPTION
Babassu palm is an androdioecious palm tree, with a straight, single and cylindrical trunk to 30 m high and a diameter of 20-45 cm.

Leaves numerous, green yellowish, erect, pinnate, spreading to drooping, 5-10 m long, doubled downwards in the young apex; leaf stalks short with a broad base.

Inflorescences large. Male and female inflorescences occur on the same plant, sometimes on a single inforescence. Inflorescences arise among the leaf bases in large, 0.5-1.8 m long, very dense clusters, with innumerable small flowers.

The fruits of babassu palm look like small coconuts, born in clusters of a few dozen to several hundred. Some trees can yield up to one-half ton of fruits per year.
Each bunch of fruits, weighing 15-90 Kg, contains 200-600 fruits. Each Fruit elliptic to oblong; 6-12 x 4-10 cm, 40-440 g in dry weight. Epicarp fibrous 1-4 mm thick; endocarp ligneous, 35-75 mm diameter, containing 3-6 oval to elliptical seeds (rarely one to two or more than six), each one of 3 to 6 cm in length, with endosperm oily and white. Mesocarps dry, 2-12 mm thick.

BIOLOGY
In Brazil, mature fruits begin to fall from their bunches between August and November and continue to drop until the rainy season begins in January and February. The flowering, generally, begins when the palm reaches of 4-5 m high, with near 40% of the plants only producing male inflorescences. In plantations, it is important to leave at least 10% of good male plants distributed to assure the production fruits. The emergence of the leaves and the flowering take place after the rainy season.

The aggressive regeneration; the meristem remains below ground level for about 2 years. (Griffee P.)

Bunches from a palm showing precocity. (Griffee P.)

Variation in seed size; the right have 35% more. Lauric acid is obtained from the seeds. (Griffee P.)

ECOLOGY
This palm is best suited to a humid climate and is found in rainforest regions and throughout its distribution range, it forms the dominant vegetal cover over millions of hectares of forest.

BIOPHYSICAL LIMITS
Altitude: 0 - 500 m, Mean annual rainfall: 400-2 500 mm

Soil type: It is suited in deep well drained fertile soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Brazil, Guyana, Mexico, Peru
Exotic:

The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Food: The pulp and seed are eaten fresh. The extracted oil from the nut is similar to coconut or oil palm, with low yield, for the oil industry. Refined oil is used for margarine production and general food purposes. The grounded mesocarp or pulp is a source of starch for producing alcohol. The terminal bud is edible, but more often it is tapped, in lieu of the inflorescence for its multiple purpose sap.

The larvae of the bruchid beetle (Pachymerus nuclearum and Carybruchus lipismatus). This beetle is a natural predator of the fruit and its larvae enter the fruit through its germination pores, usually after abcission. The larvae grow and develop within the fruit's seed chambers, assimilating oil and protein. Regional peasants eat the larvae (tapu'a), which are extracted in the same manner as kernels, by cracking open the fruit and picking them out of the chambers. Grubs are usually stir-fried with manioc flour, and taste a bit like bacon.

Fodder: Tender leaves around the bud are used as forage. The fruit mesocarp is a source of starch for animal feeds. The protein of nut contains 2.3 % of methionine and 4.3 % of lysin. After the oil is extracted, the cakes, which contain 1.1 % of phosphorus and 0.43 % of magnesium, are used as animal feeds.

Fuel: The endocarp is used to make an excellent charcoal. The dry fruit is made up of 11-14% outer shell, 14-25% mesocarp, 50-67% woody inner shell and 61% kernels. This charcoal is being increasingly sold to national and foreign buyers as industrial fuel. Husks are sometimes used to smoke rubber. The crude oil from the seeds is used for lighting lamps.

Fibre: The leaves are used for roofing and fibers for basketry, tapestry and nets.

Timber: The old trunks are useful for bridges and building as well as cellulose and paper.

Lipids: The fruit contains 3-8 kernels with oil content of 60-70% while the outer fibrous portion of the fruit contains only about 1% oil. This colourless oil is somewhat similar to coconut oil as does not readily become rancid. The crude oil is suitable for soap production and detergents.

Alcohol: Alcohol tar can be derived through industrial processing.

Other products: The larvae, which feed on, the fruits known locally as gongo are used for fish bait. Also, in coastal areas, fishermen make fish baits from the dried residues of the kernels. The shell of the nut is hard and makes good small containers.

SERVICES
Reclamation: The babassu palm has great potential for reforestation of degraded tropical ecosystems. Although it is somewhat slow going, taking 15 to 20 years to mature, once established in an area it is an extremely aggressive component of the ecosystem. As such, it could be introduced into many degraded sites, providing support for the soil, food and shade to the local animal population, and products to the humans.

Other services: Naturally growing forests are recycling nutrient supporting other forms of agriculture

TREE MANAGEMENT
Babassu fruit sprouts through a process of cryptogeal germination, so that damaged seedlings and juveniles later resprout. Moreover, babassu juveniles (pindovas) can remain in the forest understorey for as long as 50 years, ultimately yielding an accumulation of up to 6000 plants/ha. (Louis, 2000)

Babasú requires a tropical climate, high temperatures, plenty of sunshine, fertile soils and an adequate water supply. In a primary forest, it requires seven years to produce the first compound leaf and 42 years for other leaves. When cultivated without shade and in more favorable conditions, the plants take 10 years to mature.

GERMPLASM MANAGEMENT
Seed storage behaviour is intermediate. Storage temperatures of 50C are said to damage seed viability in moist storage.

PESTS AND DISEASES
At harvest fruits lying on the ground are attacked by bruchid beetles (Pachymerus nucleanum), which eats kernels. After a period of three months fruits on the ground will have been destroyed by their larvae.

FURTHER READNG

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SUGGESTED CITATION

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